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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/724,157	12/01/2003	Masataka Muratani	016907-1582	9387

22428 7590 01/17/2008

FOLEY AND LARDNER LLP
SUITE 500
3000 K STREET NW
WASHINGTON, DC 20007

EXAMINER	
NGUYEN, ALLEN H	
ART UNIT	**PAPER NUMBER**
2625	

MAIL DATE	DELIVERY MODE
01/17/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/724,157	MURATANI, MASATAKA	
	Examiner	Art Unit	
	Allen H. Nguyen	2625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 May 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *21 May 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *05/21/2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement (IDS) submitted on 05/21/2004 has been considered by the examiner.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 6-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Kimoto (US 6,424,365).

Regarding claim 1, Kimoto '365 discloses an image forming apparatus (image forming apparatus 1, fig. 1) having an automatic double-side unit (image forming apparatus having the double side print mode function, col. 1, line 50) and being capable of effecting printing on both surfaces of a paper sheet (i.e., images can always be printed on obverse and reverse surfaces of a copying paper sheet at proper positions; col. 1, lines 60-65), comprising:

setting means (The double-side print mode function, col. 1, lines 50-52) for setting an adjustment mode at a time of effecting printing on both surfaces of the paper

sheet (i.e., an image forming apparatus and a method of controlling the apparatus, wherein images can always be printed on obverse and reverse surfaces of a copying paper sheet at proper positions; col. 1, lines 60-65);

first storage means (non-volatile memory (NVM) 83, fig. 11) for prestoring predetermined image data that is used in the adjustment mode set by the setting means (i.e., the image edit section 84 includes a control section for controlling, as a main function, the scanning of the laser beam B over the photosensitive drum 20. The data for this control is stored in the non-volatile memory (NVM) 83; col. 5, lines 60-65, figs. 1, 11);

first control means (System CPU 60, fig. 11) for executing a control to form an image on a first surface of the sheet using the image data stored in the first storage means, when the setting means sets the adjustment mode (i.e., a control section for shifting a formation position of the first image on the image carrying body by a first set amount, relative to a predetermined reference position; col. 2, lines 10-15);

first measuring means (The laser beam sensor 13, fig. 2) for measuring a size of the image formed on the first surface of the sheet (i.e., the first image is formed on the surface of the photosensitive drum 20 at the position shifted from the standard position by the first set amount (distance L1). The first image is printed on the obverse surface C1 of copying sheet C; col. 6, lines 35-40, figs. 2-3), when the image formed on the first surface of the sheet is subjected to thermal fixation and conveyed (i.e., a heat roller 44 for thermal fixation and a pressure-contact roller 45 put in contact with the heat roller 44 are provided downstream of the photosensitive drum 20 along the first convey path 40;

col. 4, lines 50-55, fig. 14);

second control means (System CPU 60, fig. 11) for executing a control to form an image on a second surface of the sheet using the image data stored in the first storage means (i.e., a control section for shifting a formation position of the second image on the image carrying body by a second set amount; col. 2, lines 15-20), when the sheet is reversely fed by the automatic double-side unit (i.e., the first convey path 40 and second convey path 50 constitute a sheet convey mechanism called "ADU" for effecting printing on both the obverse and reverse surfaces of the copying sheet C; col. 4, lines 60-65, figs. 3-10);

second measuring means (The laser beam sensor 13, fig. 2) for measuring a size of the image formed on the second surface of the sheet (i.e., a second image, which is formed on the surface of the photosensitive drum 20, is printed on the reverse surface C2 of the copying sheet C. In this case, the copying sheet C is displaced by a distance Ln while it is reversed by the sheet convey mechanism and fed once again to the photosensitive drum 20; col. 6, lines 45-50, fig. 4), when the image formed on the second surface of the sheet is subjected to thermal fixation and conveyed (i.e., a heat roller 44 for thermal fixation and a pressure-contact roller 45 put in contact with the heat roller 44 are provided downstream of the photosensitive drum 20 along the first convey path 40; col. 4, lines 50-55, fig. 15);

calculation means (the image edit section 84, fig. 11) for calculating correction data for a printing magnification for image formation on the second surface of the sheet (i.e., the measured displacement amount L2 is stored as the second set amount with

respect to the respective sizes of copying sheets C; col. 7, lines 20-22), on the basis of a measurement result obtained by the first measuring means (i.e., when printing is effected on the obverse surface C1 of copying sheet C (YES in step 103), the image edit section 84 calculates a start position (scan position of laser beam B) A1 of the effective scan region X on the photosensitive drum 20 on the basis of the read-out first set value L1 (step 104), and controls the laser unit 27 on the basis of the start position A1 (step 105); col. 7, lines 28-34, fig. 12) and a measurement result obtained by the second measuring means (i.e., when printing is effected on the reverse surface C2 of copying sheet C (NO in step 103), the image edit section 84 calculates a start position (scan position of laser beam B) A2 of the effective scan region X on the photosensitive drum 20 on the basis of the read-out second set value L2 (step 106), and controls the laser unit 27 on the basis of the start position A2 (step 107); col. 7, lines 35-40, fig. 12);

second storage means (control sections, fig. 11) for storing the correction data calculated by the calculation means (i.e., control sections store plural kinds of said first set amounts and said second set amounts in accordance with sizes of paper sheets, and select one of said plural kinds in accordance with the size of the paper sheet; col. 2, lines 15-20).

Regarding claim 6, Kimoto '365 discloses the image forming apparatus (fig. 1), wherein the calculation means (the image edit section 84, fig. 11) calculates correction data that ensures a print position and dimensional precision of the image formed on the second surface of the sheet (i.e., the image edit section 84 calculates a start position

(scan position of laser beam B) A2 of the effective scan region X on the photosensitive drum 20 on the basis of the read-out second set value L2 (step 106), and controls the laser unit 27 on the basis of the start position A2 (step 107); col. 7, lines 35-40, fig. 12), which thermally contracts due to thermal fixation of the image formed on the first surface of the sheet (i.e., a heat roller 44 for thermal fixation and a pressure-contact roller 45 put in contact with the heat roller 44 are provided downstream of the photosensitive drum 20 along the first convey path 40; col. 4, lines 50-55, fig. 14), in relation to the image formed on the first surface of the sheet (i.e., the image edit section 84 calculates a start position (scan position of laser beam B) A1 of the effective scan region X on the photosensitive drum 20 on the basis of the read-out first set value L1 (step 104), and controls the laser unit 27 on the basis of the start position A1 (step 105); col. 7, lines 28-35, fig. 12), when the sheet recovers from the thermal contraction (i.e., a heat roller for thermally fixing the image transferred on the paper sheet, which has come out of the photosensitive drum; col. 4, lines 50-55).

Regarding claim 7, Kimoto '365 discloses the image forming apparatus (fig. 1), wherein the calculation means (The laser beam B main-scans, fig. 2) calculates correction data for a magnification in a main-scan direction and a magnification in a sub-scan direction (i.e., the main scanning and sub-scanning effected by the repetition of the main scanning produce an electrostatic latent image, which corresponds to the read image acquired by the read section, on the surface of the photosensitive drum 20; col. 3, lines 40-50, fig. 2).

Regarding claim 8, Kimoto '365 discloses the image forming apparatus, wherein the second storage means stores correction data for a magnification in a main-scan direction and a magnification in a sub-scan direction (i.e., control sections store plural kinds of said first set amounts and said second set amounts in accordance with sizes of paper sheets, and select one of said plural kinds in accordance with the size of the paper sheet; col. 5, lines 60-65).

Regarding claim 9, Kimoto '365 discloses an image forming apparatus (image forming apparatus 1, fig. 1) having an automatic double-side unit (image forming apparatus having the double side print mode function, col. 1, line 50) and being capable of effecting printing on both surfaces of a paper sheet (i.e., images can always be printed on obverse and reverse surfaces of a copying paper sheet at proper positions; col. 1, lines 60-65), comprising:

setting means (The double-side print mode function, col. 1, lines 50-52) for setting an adjustment mode at a time of effecting printing on both surfaces of the paper sheet (i.e., an image forming apparatus and a method of controlling the apparatus, wherein images can always be printed on obverse and reverse surfaces of a copying paper sheet at proper positions; col. 1, lines 60-65);

first storage means (non-volatile memory (NVM) 83, fig. 11) for pre-storing predetermined image data that is used in the adjustment mode set by the setting means (i.e., the image edit section 84 includes a control section for controlling, as a main function, the scanning of the laser beam B over the photosensitive drum 20. The data

for this control is stored in the non-volatile memory (NVM) 83; col. 5, lines 60-65, figs. 1, 11);

first image forming means (The first convey path 40, fig. 1) for forming an image on a first surface of the sheet using the image data stored in the first storage means, when the setting means sets the adjustment mode (i.e., the first convey path 40 begins at the position corresponding to each sheet feed cassette 30 and extends to an output port 41, via the photosensitive drum 20. The output port 41 is open at an output tray 33 formed continuous with an outer peripheral surface of the main body 1; col. 4, lines 35-40, fig. 1);

first measuring means (The laser beam sensor 13, fig. 2) for measuring a size of the image formed on the first surface of the sheet (i.e., the first image is formed on the surface of the photosensitive drum 20 at the position shifted from the standard position by the first set amount (distance L1). The first image is printed on the obverse surface C1 of copying sheet C; col. 6, lines 35-40, figs. 2-3), when the image formed on the first surface of the sheet is subjected to thermal fixation and conveyed (i.e., a heat roller 44 for thermal fixation and a pressure-contact roller 45 put in contact with the heat roller 44 are provided downstream of the photosensitive drum 20 along the first convey path 40; col. 4, lines 50-55, fig. 14);

second image forming means (A second convey path 50, fig. 1) for forming an image on a second surface of the sheet using the image data stored in the first storage means, when the sheet is reversely fed by the automatic double-side unit (i.e., a second convey path 50 is provided to extend from the end point of the first convey path 40 to

that point on the first convey path, which is upstream of the photosensitive drum 20 and register roller 43; col. 4, lines 55-60, fig. 1);

second measuring means (The laser beam sensor 13, fig. 2) for measuring a size of the image formed on the second surface of the sheet (i.e., a second image, which is formed on the surface of the photosensitive drum 20, is printed on the reverse surface C2 of the copying sheet C. In this case, the copying sheet C is displaced by a distance Ln while it is reversed by the sheet convey mechanism and fed once again to the photosensitive drum 20; col. 6, lines 45-50, fig. 4), when the image formed on the second surface of the sheet is subjected to thermal fixation and conveyed (i.e., a heat roller 44 for thermal fixation and a pressure-contact roller 45 put in contact with the heat roller 44 are provided downstream of the photosensitive drum 20 along the first convey path 40; col. 4, lines 50-55, fig. 15);

calculation means (the image edit section 84, fig. 11) for calculating correction data for a printing magnification for image formation on the second surface of the sheet (i.e., the measured displacement amount L2 is stored as the second set amount with respect to the respective sizes of copying sheets C; col. 7, lines 20-22), on the basis of a measurement result obtained by the first measuring means (i.e., when printing is effected on the obverse surface C1 of copying sheet C (YES in step 103), the image edit section 84 calculates a start position (scan position of laser beam B) A1 of the effective scan region X on the photosensitive drum 20 on the basis of the read-out first set value L1 (step 104), and controls the laser unit 27 on the basis of the start position A1 (step 105); col. 7, lines 28-34, fig. 12) and a measurement result obtained by the

second measuring means (i.e., when printing is effected on the reverse surface C2 of copying sheet C (NO in step 103), the image edit section 84 calculates a start position (scan position of laser beam B) A2 of the effective scan region X on the photosensitive drum 20 on the basis of the read-out second set value L2 (step 106), and controls the laser unit 27 on the basis of the start position A2 (step 107); col. 7, lines 35-40, fig. 12);

second storage means (control sections, fig. 11) for storing the correction data calculated by the calculation means (i.e., control sections store plural kinds of said first set amounts and said second set amounts in accordance with sizes of paper sheets, and select one of said plural kinds in accordance with the size of the paper sheet; col. 2, lines 15-20);

control means (CPU 80, fig. 11) for executing, when an image is to be formed on the second surface of the sheet in double-side printing (i.e., a second image is formed on the image carrying body, the paper sheet, which has come out of the image carrying body, is reversed and fed once again to the image carrying body and thereby the second image on the image carrying body is printed on the other surface of the paper sheet; col. 2, lines 5-10), a control to form the image by correcting a print magnification using the correction data stored in the second storage means (i.e., the second image would be printed on the reverse surface C2 of copying sheet C with a displacement from the proper position on the reverse surface C2; col. 6, lines 54-56, fig. 15).

Regarding claim 10, Kimoto '365 discloses the image forming apparatus (image forming apparatus 1, fig. 1), wherein the control means (CPU 80, fig. 11) corrects a magnification in a main-scan direction and a magnification in a sub-scan direction using the correction data (i.e., the main scanning and sub-scanning effected by the repetition of the main scanning produce an electrostatic latent image, which corresponds to the read image acquired by the read section, on the surface of the photosensitive drum 20; col. 3, lines 45-50).

Regarding claim 11, claim 11 is the method claim of device claim 1. Therefore, method claim 11 is rejected for the reason given in device claim 1.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kimoto (US 6,424,365) in view of Metzler et al. (US 2003/0002891).

Regarding claim 2, Kimoto '365 does not disclose the image forming apparatus, wherein the first storage means pre-stores predetermined image data including a triangular solid mark and a rectangular solid mark.

However, the above-mentioned claimed limitations are well known in the art as evidenced by Metzler '891. In particular, Metzler '891 teaches the image forming apparatus, wherein the first storage means pre-stores predetermined image data including a triangular solid mark (i.e., first the point A and than the point B on the opposite side of the triangular registration mark 30; page 4, paragraph [0031], fig. 4) and a rectangular solid mark (i.e., as rectangles which are scanned with signals by a sensor device 70 arranged above the conveyor belt 40; page 2, paragraph [0016]).

In view of the above, having the system of Kimoto and then given the well-established teaching of Metzler, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the system of Kimoto as taught by Metzler to include: the image forming apparatus, wherein.the first storage means pre-stores predetermined image data including a triangular solid mark and a rectangular solid mark, since Metzler stated on page 1, paragraph [0003] that such a modification would ensure the image forming device contains an imaging sensor to determine the position of the geometric focal point of the first and second registration mark with respect to an individual spatially fixed reference point .

6. Claims 3-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kimoto (US 6,424,365) in view of Sato et al. (US 2002/0176725).

Regarding claim 3, Kimoto '365 does not disclose the image forming apparatus,

wherein the first measuring means uses one or more sensors to measure a passage time of the predetermined image formed on the first surface of the sheet.

However, the above-mentioned claimed limitations are well known in the art as evidenced by Sato '725. In particular, Sato '725 teaches the image forming apparatus (fig. 1), wherein the first measuring means (a control means CR, fig. 5) uses one or more sensors (sensors SS, SS1, and SS2, fig. 1) to measure a passage time of the predetermined image formed on the first surface of the sheet (i.e., by these sensors SS, SS1, and SS2, the leading edge passage time of the recording sheet is detected; page 5, paragraph [0089]).

In view of the above, having the system of Kimoto and then given the well-established teaching of Sato, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the system of Kimoto as taught by Sato to include: the image forming apparatus, wherein the first measuring means uses one or more sensors to measure a passage time of the predetermined image formed on the first surface of the sheet, since Sato stated on page 1, paragraph [0002] that such a modification would ensure a means to shorten an interval between the conveying start times of the preceding conveyed recording sheet and the following conveyed recording sheet, that is, to shorten the sheet feed interval.

Regarding claim 4, Kimoto '365 does not disclose the image forming apparatus, wherein the second measuring means uses one or more sensors to measure a passage time of the predetermined image formed on the second surface of the sheet.

However, the above-mentioned claimed limitations are well known in the art as evidenced by Sato '725. In particular, Sato '725 teaches the image forming apparatus (fig. 1), wherein the second measuring means (the secondary sheet feed means S2, fig. 1) uses one or more sensors (sensors SS, SS1, and SS2, fig. 1) to measure a passage time of the predetermined image formed on the second surface of the sheet (i.e., the travel time of the recording sheet from the sensor to the secondary sheet feed position is added, the secondary sheet feed arrival time is obtained; page 5, paragraph [0089], fig. 2).

In view of the above, having the system of Kimoto and then given the well-established teaching of Sato, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the system of Kimoto as taught by Sato to include: the image forming apparatus, wherein the first measuring means uses one or more sensors to measure a passage time of the predetermined image formed on the first surface of the sheet, since Sato stated on page 1, paragraph [0002] that such a modification would ensure a means to shorten an interval between the conveying start times of the preceding conveyed recording sheet and the following conveyed recording sheet, that is, to shorten the sheet feed interval.

Regarding claim 5, Kimoto '365 does not disclose the image forming apparatus, wherein the calculation means calculates correction data on the basis of a speed of conveyance of the paper sheet, a passage time of the predetermined image measured

by the first measuring means, and a passage time of the predetermined image measured by the second measuring means.

However, the above-mentioned claimed limitations are well known in the art as evidenced by Sato '725. In particular, Sato '725 teaches the image forming apparatus (fig. 1), wherein the calculation means calculates correction data on the basis of a speed of conveyance of the paper sheet (i.e., the recording sheet conveying speed is determined to the target image forming speed; page 5, paragraph [0080]), a passage time of the predetermined image measured by the first measuring means (i.e., the leading edge passage time of the recording sheet is detected; page 5, paragraph [0089]), and a passage time of the predetermined image measured by the second measuring means (i.e., the travel time of the recording sheet from the sensor to the secondary sheet feed position is added; page 5, paragraph [0089], fig. 2).

In view of the above, having the system of Kimoto and then given the well-established teaching of Sato, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the system of Kimoto as taught by Sato to include: the image forming apparatus, wherein the calculation means calculates correction data on the basis of a speed of conveyance of the paper sheet, a passage time of the predetermined image measured by the first measuring means, and a passage time of the predetermined image measured by the second measuring means, since Sato stated on page 1, paragraph [0002] that such a modification would ensure a technology to shorten the time necessary for forming one sheet of an image,

there are a means to increase the conveying speed of the recording sheet in the image forming process.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Veeder (US 4,935,786) discloses method and apparatus for duplex printing.

Izumiya et al. (US 2003/0174200) discloses image forming apparatus.

Nidhieski (US 2003/0161652) discloses image forming apparatus.

Ueda et al. (US 6,433,896) discloses image processing apparatus.

Ito (US 4,864,365) discloses automated image duplicating apparatus.

Shenoy (US 4,585,332) discloses electrophotographic printing machine with means for sensing size of document.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allen H. Nguyen whose telephone number is 571-270-1229. The examiner can normally be reached on M-F from 9:00 AM-6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, King Poon can be reached on (571)-272-7440. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AN

KING Y. POON
SUPERVISORY PATENT EXAMINER

01/11/2008